

We claim:-

1. A process for the preparation of a readily water-redispersible polymer powder by spray drying of an aqueous polymer dispersion, wherein the spray drying of the aqueous polymer dispersion is effected in the presence of a spray assistant A which was obtained by reacting a dihydroxydiphenyl sulfone with from 0.5 to 5 mol of an aliphatic aldehyde of 1 to 6 carbon atoms and from 0.4 to 2 mol of sodium sulfite per mole of dihydroxydiphenyl sulfone at from 90 to 180°C.
2. The process according to claim 1, wherein the dihydroxydiphenyl sulfone used is 4,4'-dihydroxydiphenyl sulfone or a mixture comprising it.
3. The process according to either of claims 1 and 2, wherein the reaction of the dihydroxydiphenyl sulfone is effected in aqueous solution under pressure.
4. The process according to claim 3, wherein the aqueous solution obtained after the reaction is brought to a pH of  $\geq 7$ .
5. The process according to any of claims 1 to 4, wherein the spray assistant A is used in the form of a mixture with at least one other spray assistant B.
6. The process according to claim 5, wherein the total amount of the spray assistant comprises  $\geq 50\%$  by weight of spray assistant A.
7. The process according to any of claims 1 to 6, wherein from 0.1 to 40 parts by weight of spray assistant A are used per 100 parts by weight of polymer.
8. The process according to any of claims 1 to 7, wherein the polymer comprises  
from 50 to 99.9% by weight of esters of acrylic and/or methacrylic acid with alkanols of 1 to 12 carbon atoms and/or styrene, or  
from 50 to 99.9% by weight of styrene and/or butadiene, or  
from 50 to 99.9% by weight of vinyl chloride and/or vinylidene chloride, or  
from 40 to 99.9% by weight of vinyl acetate, vinyl propionate and/or ethylene incorporated in the form of polymerized units.
9. The process according to any of claims 1 to 8, wherein the polymer has a glass transition temperature of from -60 to +150°C.

10. The process according to any of claims 1 to 9, wherein, in addition to the spray assistant A, at least one antiblocking agent is used for the spray drying.
11. A polymer powder obtainable by the process according to any of claims 1 to 10.
- 5 12. The use of a polymer powder according to claim 11 as a binder in adhesives, sealing compounds, synthetic resin renders, paper coating slips, surface coating compositions and other coating materials or as an additive in mineral binders.
- 10 13. An aqueous polymer dispersion obtainable by redispersing polymer powder according to claim 11 in an aqueous medium.
- 15 14. The use of a reaction product which was obtained by reacting a dihydroxydiphenyl sulfone with from 0.5 to 5 mol of an aliphatic aldehyde of 1 to 6 carbon atoms and from 0.4 to 2 mol of sodium sulfite per mole of dihydroxydiphenyl sulfone at from 90 to 180°C, as a spray assistant in the spray drying of aqueous polymer dispersions.